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Attorney Docket No.: 99CON114P

### REMARKS

Claims 1-23 are pending in the present application. Reconsideration and allowance of pending claims 1-23 in view of the following remarks are requested.

The Examiner has rejected claim 1 under 35 USC §102(e) as being anticipated by U.S. patent number 6,291,865 B1 to Hyung Joo Lee ("Lee"). For the reasons discussed below, Applicant respectfully submits that the present invention, as defined by independent claim 1, is patentably distinguishable over Lee.

The present invention, as defined by independent claim 1, teaches a first area and a second area in a dielectric having a first dielectric constant. Thus, the first area and the second area are part of a single dielectric that has a first dielectric constant. The present invention, as defined by independent claim 1, also teaches covering the first area in the dielectric. As disclosed in the present application, the first area may be covered, for example, with photoresist. As disclosed in the present application, the first area in the dielectric is covered to prevent the first area from being exposed to a dielectric conversion source.

The present invention, as defined by independent claim 1, further teaches exposing the second area in the dielectric to a dielectric conversion source. As disclosed in the present application, the dielectric conversion source may be, for example, E-beams or I-beams. As a result of exposure to the dielectric conversion source, the dielectric constant of the dielectric in the second area is increased from a first dielectric constant to a second dielectric constant. Thus as a result of exposure to the dielectric conversion

source, the second area of the dielectric has a second dielectric constant that is greater than the first dielectric constant of the first area, which was not exposed to the dielectric conversion source.

In summary, the present invention, as defined by independent claim 1, is directed to (1) a dielectric having a first area and a second area and also having a first dielectric constant; (2) covering the first area in the dielectric to prevent exposure to a dielectric conversion source; (3) exposing the second area in the dielectric to a dielectric conversion source; and (4) increasing the first dielectric constant of the dielectric in the second area to a second dielectric constant. In contrast, none of the above four features of the present invention, as defined by independent claim 1, is taught, disclosed, or even suggested by Lee.

First, Lee does not teach, disclose, or suggest a dielectric having a first area and a second area and also having a first dielectric constant. Lee specifically discloses first gate insulator 21 having a first dielectric constant  $\epsilon_1$  formed on semiconductor substrate 20 and second gate insulator 22 having a second dielectric constant  $\epsilon_2$  formed on semiconductor substrate 20. See, for example, column 5, lines 53-60 of Lee.

Furthermore, Lee states that when  $\text{Si}_3\text{N}_4$  is used as first gate insulator 21,  $\text{SiO}_2$  may be used as second gate insulator 22. See, for example, column 6, lines 3-6 of Lee. Thus, first gate insulator 21 and second gate insulator 22, respectively, comprise different materials, i.e.  $\text{Si}_3\text{N}_4$  and  $\text{SiO}_2$ , and have different dielectric constants, i.e.  $\epsilon_1$  and  $\epsilon_2$ .

Second, Lee does not teach, disclose, or suggest covering the first area in the dielectric to prevent exposure to a dielectric conversion source. In Lee, first and second gate insulators 21 and 22 are essentially covered by depositing a gate electrode material layer on first and second gate insulators 21 and 22. See, for example, column 5, lines 63-66 of Lee. First and second gate insulators 21 and 22 are covered by the gate electrode material layer during the fabrication of a gate of a FET. Thus, first and second gate insulators 21 and 22 are not covered to prevent exposure to a dielectric conversion source. In fact, Lee does not teach, disclose, or suggest a dielectric conversion source.

Third, Lee does not teach, disclose, or suggest exposing the second area in the dielectric to a dielectric conversion source. As discussed above, Lee does not teach, disclose, or suggest a dielectric conversion source. Fourth, Lee does not teach, disclose, or suggest increasing the first dielectric constant of the dielectric in the second area to a second dielectric constant. As discussed above, Lee discloses first gate insulator 21 having a first dielectric constant  $\epsilon_1$  and second gate insulator 22 having a second dielectric constant  $\epsilon_2$ . However, Lee does not teach, disclose, or suggest increasing first dielectric constant  $\epsilon_1$  of first gate insulator 21 or increasing second dielectric constant  $\epsilon_2$  of second gate insulator 22. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 1, is not suggested, disclosed, or taught by Lee.

The Examiner has further rejected dependent claims 2, 3, and 4 under 35 USC §103(a) as being unpatentable over Lee in view of U.S. patent number 6,313,492 B1 to

Hakey et al. (“Hakey”). As discussed above, independent claim 1 is patentably distinguishable over Lee and, as such, claims 2, 3, and 4 depending from independent claim 1 are, a fortiori, also patentably distinguishable over Lee.

The Examiner has further rejected dependent claims 6 and 7 under 35 USC §103(a) as being unpatentable over Lee in view of U.S. patent number 6,303,391 B1 to Hintermaier et al. (“Hintermaier”). As discussed above, independent claim 1 is patentably distinguishable over Lee and, as such, claims 6 and 7 depending from independent claim 1 are, a fortiori, also patentably distinguishable over Lee.

The Examiner has further rejected dependent claims 8-10 under 35 USC §103(a) as being unpatentable over Lee in view of Hintermaier and further in view of U.S. patent number 5,925,960 to Greco et al. (“Greco”). As discussed above, independent claim 1 is patentably distinguishable over Lee and, as such, claims 8-10 depending from independent claim 1 are, a fortiori, also patentably distinguishable over Lee.

The Examiner has further rejected independent claims 11, 14, and 16 and dependent claims 12, 13, 15, 17, and 23 under 35 USC §103(a) as being unpatentable over Lee in view of Greco. For the reasons discussed below, Applicant respectfully submits that the present invention, as defined by independent claims 11, 14, and 16 is patentably distinguishable over Lee, Greco, or any combination thereof.

The present invention, as defined by independent claim 11, teaches features claimed in independent claim 1 and, as such, is patentably distinguishable over Lee for the reasons discussed above. Furthermore features of the present invention taught by

independent claims 1 and 11, such as covering a first area in a dielectric to prevent exposure to a dielectric conversion source and exposing a second area in the dielectric to the dielectric conversion source to increase a first dielectric constant of the dielectric in the second area to a second dielectric constant, are not taught, disclosed, or suggested by Greco. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 11, is not suggested, disclosed, or taught by Lee, either singly, or in combination with Greco. As discussed above, independent claim 11 is patentably distinguishable over Lee and Greco and, as such, claims 12 and 13 depending from independent claim 11 are, a fortiori, also patentably distinguishable over Lee, Greco, or any combination thereof.

The present invention, as defined by independent claim 14, teaches features claimed in independent claim 1 and, as such, is patentably distinguishable over Lee for the reasons discussed above. Furthermore features of the present invention taught by independent claims 1 and 14, such as exposing a second area in a dielectric to a dielectric conversion source so as to increase a first dielectric constant of the dielectric in the second area to a second dielectric constant, are not taught, disclosed, or suggested by Greco. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 14, is not suggested, disclosed, or taught by Lee, either singly, or in combination with Greco. As discussed above, independent claim 14 is patentably distinguishable over Lee and Greco and, as such, claim 15 depending

from independent claim 14 is, a fortiori, also patentably distinguishable over Lee, Greco, or any combination thereof.

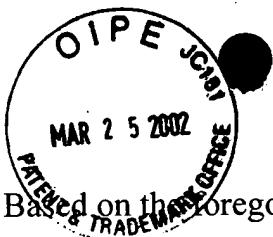
The present invention, as defined by independent claim 16, teaches features claimed in independent claim 1 and, as such, is patentably distinguishable over Lee for the reasons discussed above. Furthermore features of the present invention taught by independent claims 1 and 16, such as exposing a second area in a dielectric, e.g. a gap fill dielectric, to a dielectric conversion source so as to increase a first dielectric constant of the dielectric in the second area to a second dielectric constant, are not taught, disclosed, or suggested by Greco. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 16, is not suggested, disclosed, or taught by Lee, either singly, or in combination with Greco. As discussed above, independent claim 16 is patentably distinguishable over Lee and Greco and, as such, claims 17 and 23 depending from independent claim 14 are, a fortiori, also patentably distinguishable over Lee, Greco, or any combination thereof.

The Examiner has further rejected dependent claims 18-20 under 35 USC §103(a) as being unpatentable over Lee in view of Greco and further in view of Hakey. As discussed above, independent claim 16 is patentably distinguishable over Lee and, as such, claims 18-20 depending from independent claim 16 are, a fortiori, also patentably distinguishable over Lee.

The Examiner has further rejected dependent claims 21-22 under 35 USC §103(a) as being unpatentable over Lee in view of Greco and further in view of Hintermaier. As

discussed above, independent claim 16 is patentably distinguishable over Lee and, as such, claims 21-22 depending from independent claim 16 are, a fortiori, also patentably distinguishable over Lee.





Based on the foregoing reasons, the present invention, as defined by independent claims 1, 11, 14, and 16 and claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. Thus, claims 1-23 pending in the present application are patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing reasons, an early allowance of claims 1-23 pending in the present application is respectfully requested.

Respectfully Submitted,  
FARJAMI & FARJAMI LLP

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Date: 3/11/02

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